

WHAT IS CLAIMED IS:

1. An isolated or recombinant polypeptide that:
- 5 a) specifically binds polyclonal antibodies generated against at least a 12 consecutive amino acid segment of SEQ ID NO: 2 or 4; and
- b) comprises at least one sequence selected from:
- 10 i) GENSGVK; EDWEKD; CCLEDPA; FVHTSR; KKFSIHD; VLVLDS; NLIAVP; FFALAS; SSASAEK; SLILLGV; FCLYCDK; PSLQLK; KLMKLAAQ; FIFYRAQ; SRNMLES; WFICTS; EPVGVT; or FSFQPVC (see SEQ ID NO: 2); or
- 15 ii) FVHTSP; SPILLGV; or SWNMLES (see SEQ ID NO: 4).
2. The polypeptide of Claim 1:
- a) wherein said polypeptide comprises a plurality of said sequences selected from said groups in section b);
- 20 b) which specifically binds to polyclonal antibodies generated against an immunogen selected from SEQ ID NO: 2 or 4; or
- c) wherein said 12 consecutive amino acid segment is selected from: GVKMGSEDWEKD; AGSPLEPGPSLP;
- 25 SRKVKSLNPKKF; HDQDHKVLVLDS; NLIAVPDKNYIR; FALASSLSSASA; GQSHPSLQLKKE; MKLAAQKESARR; FYRAQVGSRNML; TSCNCNEPVGVT; FENRKHIEFSFQ; or PVCKAEMSPSEV (see SEQ ID NO: 2); or AVSPLEPGPSLP; SPKVKNLNPCKF; or FYRAQVGSWNML (see SEQ ID NO: 4).
- 30

3. The polypeptide of Claim 2, wherein said polypeptide:

- i) comprises a mature protein;
- ii) lacks a post-translational modification;
- 5 iii) is from a primate, including a human;
- iv) is a natural allelic variant of IL-1 ζ ;
- v) has a length at least about 30 amino acids;
- vi) exhibits at least two non-overlapping epitopes that are specific for a primate IL-1 ζ ;
- 10 vii) exhibits a sequence identity over a length of at least about 20 amino acids to SEQ ID NO: 2 or 4;
- viii) is not glycosylated;
- ix) has a molecular weight of at least 10 kD with natural glycosylation;
- 15 x) is a synthetic polypeptide;
- xi) is attached to a solid substrate;
- xii) is conjugated to another chemical moiety;
- xiii) is a 5-fold or less substitution from natural sequence; or
- 20 xiv) is a deletion or insertion variant from a natural sequence.

4. A composition of matter comprising:

- a) a sterile polypeptide of Claim 2;
- 25 b) said sterile polypeptide of Claim 2 and a carrier, wherein said carrier is:
 - i) an aqueous compound, including water, saline, and/or buffer; and/or
 - ii) formulated for oral, rectal, nasal, topical,
 - 30 or parenteral administration.

5. A fusion protein having a polypeptide sequence of Claim 2 further comprising:

- a) a mature polypeptide of Claim 2;
- 35 b) a detection or purification tag, including a FLAG, His6, or Ig sequence; or
- c) sequence of another cytokine or chemokine.

6. A kit comprising a polypeptide of Claim 2, and:
- a) a compartment comprising said polypeptide; and/or
 - b) instructions for use or disposal of reagents in said kit.

7. A binding compound comprising an antigen binding site from an antibody, which specifically binds to a mature polypeptide of Claim 2, wherein:

- a) said mature polypeptide is a primate IL-1 ζ ;
- b) said binding compound is an Fv, Fab, or Fab2 fragment;
- c) said binding compound is conjugated to another chemical moiety; or
- d) said antibody:
 - i) is raised against a 12 consecutive amino acid segment of SEQ ID NO: 2 or 4;
 - ii) is raised against a mature IL-1 ζ ;
 - iii) is raised to a purified primate IL-1 ζ ;
 - iv) is immunoselected;
 - v) is a polyclonal antibody;
 - vi) binds to a denatured IL-1 ζ ;
 - vii) exhibits a K_d to antigen of at least 30 μ M;
 - viii) is attached to a solid substrate, including a bead or plastic membrane;
 - ix) is in a sterile composition; or
 - x) is detectably labeled, including a radioactive or fluorescent label.

8. A kit comprising said binding compound of Claim 7, and:

- a) a compartment comprising said binding compound; and/or
- b) instructions for use or disposal of reagents in said kit.

9. A composition comprising:
- a) a sterile binding compound of Claim 7, or
 - b) said binding compound of Claim 7 and a carrier,
wherein said carrier is:
 - 5 i) an aqueous compound, including water, saline,
and/or buffer; and/or
 - ii) formulated for oral, rectal, nasal, topical,
or parenteral administration.
- 10 10. An isolated or recombinant nucleic acid encoding
a polypeptide of Claim 2, wherein:
- a) said polypeptide of Claim 2 is a primate IL-1 ζ ; or
 - b) said nucleic acid:
 - 15 i) encodes an antigenic peptide sequence of SEQ
ID NO: 2 or 4;
 - ii) encodes a plurality of antigenic peptide
sequences of SEQ ID NO: 2 or 4;
 - iii) exhibits at least about 80% identity to a
natural cDNA encoding said segment;
 - 20 iv) is an expression vector;
 - v) further comprises an origin of replication;
 - vi) is from a natural source;
 - vii) comprises a detectable label;
 - viii) comprises synthetic nucleotide sequence;
 - 25 ix) is less than 6 kb, preferably less than 3
kb;
 - x) is from a rodent;
 - xi) comprises a natural full length coding
sequence;
 - 30 xii) is a hybridization probe for a gene
encoding said IL-1 ζ ; or
 - xiii) is a PCR primer, PCR product, or
mutagenesis primer; or
 - 35 xiv) encodes an IL-1 ζ polypeptide.
11. A cell, transformed with said nucleic acid of
Claim 10.

12. The cell of Claim 11, wherein said cell is:
- a) a prokaryotic cell;
 - b) a eukaryotic cell;
 - 5 c) a bacterial cell;
 - d) a yeast cell;
 - e) an insect cell;
 - f) a mammalian cell;
 - g) a mouse cell;
 - 10 h) a primate cell; or
 - i) a human cell.
13. A kit comprising said nucleic acid of Claim 10, and:
- 15 a) a compartment further comprising a primate IL-1 ζ polypeptide; and/or
 - b) instructions for use or disposal of reagents in said kit.
- 20 14. An isolated or recombinant nucleic acid that hybridizes under wash conditions of 30° C and less than 2M salt to SEQ ID NO: 1.
15. The nucleic acid of Claim 14, wherein:
- 25 a) said wash condition is at 45° C and/or 500 mM salt; or
 - b) said nucleic acid encodes at least 12 contiguous amino acids of SEQ ID NO: 2 or 4.
- 30 16. The nucleic acid of Claim 15, wherein:
- a) said wash condition is at 55° C and/or 150 mM salt; or
 - b) said nucleic acid encodes at least 17 contiguous amino acids of SEQ ID NO: 2 or 4.

17. A method of modulating a cell involved in an inflammatory response comprising contacting said cell with an agonist or antagonist of a primate IL-1 ζ polypeptide of Claim 1.

5

18. The method of Claim 17, wherein:

- a) said contacting is in combination with an agonist or antagonist of IL-1 α , IL-1RA, IL-1 β , IL-1 γ , IL-1 δ , IL-1 ϵ , IL-2, and/or IL-12;
- 10 b) said contacting is with an antagonist, including binding composition comprising an antibody binding site which specifically binds an IL-1 ζ ;
or
- c) said modulating is regulation of IFN- γ production.

15

19. A binding compound comprising an antigen binding portion from an antibody, which specifically binds to a primate protein of Claim 1, wherein:

- a) said protein is a human protein;
- 20 b) said binding compound is an Fv, Fab, or Fab2 fragment;
- c) said binding compound is conjugated to another chemical moiety; or
- d) said antibody:
 - 25 i) is raised against a polypeptide sequence of a mature polypeptide comprising at least 12 consecutive amino acids of SEQ ID NO: 2 or 4;
 - ii) is raised against a mature primate IL-1 ζ ;
 - 30 iii) is raised to a purified primate IL-1 ζ ;
 - iv) is immunoselected;
 - v) is a polyclonal antibody;
 - vi) binds to a denatured primate IL-1 ζ ;
 - vii) exhibits a Kd to antigen of at least 30 μ M;
 - 35 viii) is attached to a solid substrate, including a bead or plastic membrane;
 - ix) is in a sterile composition; or

x) is detectably labeled, including a radioactive or fluorescent label.

20. A method of:

5 A) making an antibody of Claim 19, comprising immunizing an immune system with an immunogenic amount of:

a) a primate IL-1 ζ polypeptide; or

10 b) a peptide sequence comprising at least 12 consecutive amino acids of SEQ ID NO: 2 or 4;

thereby causing said antibody to be produced; or

15 B) producing an antigen:antibody complex, comprising contacting a primate IL-1 ζ polypeptide with an antibody of Claim 19 thereby allowing said complex to form.